

REPORTS on the MARINE BIOLOGY of the SUDANESE RED SEA.—V. On the
POLYPLACOPHORA, or CHITONS. By E. R. SYKES, F.L.S.

[Read 2nd May, 1907.]

I HAVE taken the opportunity of including in this report a series of specimens collected by Mr. Crossland in East Africa, owing to the similarity of the fauna.

The collection includes ten species : of these seven are identified with known forms, two are described as new, and one is left for the present unnamed.

One feature of special interest in this collection is the identification of the genus *Cryptoplax* from the shores of Eastern Africa ; two forms having occurred, both of which appear to be specifically identical with those of Australia and Eastern Seas.

ISCHNOCHITON sp.

Hab. Zanzibar, from a pool in Chuaka Bay, 2–3 fath.

Two specimens of a very small species of *Ischnochiton*, measuring about 5 mill. in length. I am unable to identify them, but, owing to their diminutive size, it seems wiser for the present to leave them unnamed, until either further material or larger specimens be obtained. Colour white, with a brown girdle. Shape resembling the usual form of *Lepidopleurus*. Sculpture punctation on the valves. Valve-slits : end-valves about 14 slits, median 1 slit.

CALLISTOCHITON CROSSLANDI, n. sp.

Shell oblong, well elevated, not carinated ; pale brownish-white, the girdle similar in colour.

Valves hardly beaked. Lateral areas with two strong riblets, these being granulose, and the interstices nearly smooth ; median areas with about twelve fairly strong sub-granulose longitudinal riblets, which often break as they approach the beak, the interstices smooth. Head-valve with thirteen pectinated riblets (apparently formed by the splitting of seven). Tail-valve having the mucro median, the posterior slope a trifle concave, with, by splitting, fifteen riblets. Interior white, a trifle tinged with brown. Head-valve with 8, median valves 1, tail-valves 9 slits : teeth finely pectinated.

Girdle densely covered with well sculptured scales.

Length about 25, breadth about 15 mill.

Hab. Shore at Wasin, East Africa.

A single specimen, which I am unable to reconcile with either of the two species recorded from the Red Sea. As compared with *C. adenensis*, Smith, it is a larger species, with stronger sculpture and fewer ribs on the valves. As compared with the typical form of *C. heterodon*, Pilsbry, it has

two ribs on the lateral areas in place of four, and the tail-valve is concave behind, not convex as described by him and shown in his figures. The var. *savignyi*, founded on a figure of Savigny's, appears to differ in having a smooth central area, with fewer ribs on the head- and tail-valves. I have described the ribs on the head- and tail-valves as seen by me, but I would not place great reliance on the actual number, since they appear to be liable to split up.

CRASPEDOCHITON LAQUEATUS (*Sowerby*).

Chiton laqueatus, Sowerby, Proc. Zool. Soc. 1841, p. 104.

Craspedochiton laqueatus, Sby.; Pilsbry, Man. Conch. vol. xiv. p. 285.

Hab. Zanzibar Channel, 10–20 fath.; also in 5 fath., bottom gravel, broken shells, &c.: Wasin, shore and in 10 fath.

A single specimen from each locality. In my view they are all varying forms of this well-known shell, which, described from the Philippines, has been since identified from Ceylon and the Maldive Is. I have been unable to attach any of these specimens to the recently described *C. tessellatus*, Nierstrasz. It must be borne in mind that the shape of the girdle, &c., varies with the mode of preservation.

ACANTHOCHITES NIERSTRASZI, n. sp.

Shell elongate, moderately elevated, subcarinate. Surface dull, the median area of the central valves white or pinkish, the residue of the valves more or less, irregularly, marked with blackish brown, as are also the anterior and posterior valves.

Median valves somewhat beaked. Dorsal area well-marked, fairly large in size and longitudinally striate. Latero-pleural areas covered with large flat granules, these being rounded towards the beaks and becoming pear-shaped towards the outer margin. The tegmentum of posterior valve is subquadrate, the mucro central.

Interior whitish, sinus moderate in size. Slits as usual in the group. Girdle yellowish-white to brown, large, covered with closely-set hairs; 18 small white tufts of spicules are present, four being in front of the anterior valve, and they arise from greenish pores.

Length about 28, breadth about 18 mill.

Hab. Suez mud-flats; Dock wall at Suez.

Akin to *A. penicillatus*, Desh., but apparently differing from that species in the following characters. The sculpture in the new species is a trifle coarser, the granules not so "regularly" arranged and being rounder near the beaks; the tegmentum of the posterior valve is not rounded, being angular, and the mucro is ventral, not posterior.

I have been unable to trace any "fringe of long peripheral spines" in the present form.

A good series was collected, which vary considerably in their colour pattern : the green pores from which the tufts arise are very conspicuous in spirit specimens.

ACANTHOCHITES PENICILLATUS (Deshayes).

Chiton penicillatus, Deshayes, Moll. Réunion, p. 41, pl. vi. figs. 8–10.

Acanthochites penicillatus, Deshayes; Pilsbry, Man. Conch. vol. xv. p. 15, pl. iv. fig. 84, pl. viii. figs. 29, 30.

Hab. Shores of Chaki Chaki Bay, Pemba Island.

A single specimen, identified from a shell, collected by Robillard at Mauritius, and presented to me by Mr. Sowerby. I now feel some doubt whether I was correct in referring * to this form, specimens collected in the Gulf of Manaar. At that time I had not seen the 'Robillard' shell. The figures that I then gave were not good. A single shell of an Acanthochitoid from "Wasin, 10 fath." may belong here, but is too young for accurate specific determination. There is also a very young shell from "shore at Zanzibar" which I think belongs here; it shows the fringe of glassy spicules at the periphery most distinctly.

CRYPTOPLAX BURROWI (Smith).

Chiton (Chitonellus) burrowi, Smith, Zool. 'Alert,' p. 85.

Cryptoplax burrowi, Smith; Pilsbry, Man. Conch. vol. xv. p. 54.

Hab. Wasin, East Africa.

A single specimen, which the author of the species has very kindly examined, hitherto recorded from Australia and the Straits of Macassar.

CRYPTOPLAX STRIATUS (Lamarck).

Chitonellus striatus, Lamarck, Anim. sans Vert. vol. vi. p. 317 (1819).

Cryptoplax striatus, Lamarck; Pilsbry, Man. Conch. vol. xv. p. 53.

Hab. Zanzibar, on reef edge, east coast; also 10–20 fath. in Zanzibar Channel, and on the shore. Khor Dongola, washed out of nullipore dredged in 5 fath. just west of Beacon Islet.

After a careful examination of the specimens, as also the separated valves, I am unable to sever the form from this well-known species, which has been recorded from various Australasian localities. In a note some few years ago † I recorded the occurrence of the genus in Natal, and I think the specimen then figured, whose specific standing I was unable to be sure of, really belongs to *C. striatus*. Save for the last mentioned notes, the present paper appears to be the only record of the genus having been found on the shores of Africa. The record from Khor Dongola is referred here with some little doubt as the single specimen is very young.

* Rep. Oyster Fisheries, pt. 1, Suppl. Rep. iv. p. 179.

† J. Malac. vol. vii. p. 164 (1900).

CHITON AFFINIS, *Issel*.

Chiton affinis, Issel, Mal. Mar Rosso, p. 234; Pilsbry, Man. Conch. vol. xiv. p. 181.

Hab. Suez, mud-flats; Suez Bay, among coral.

This form appears to differ from *C. olivaceus*, Spengler [= *C. siculus*, Gray] in the following respects. The girdle scales are in *C. affinis* smaller and bear a few well-marked striæ, while in the other species they have more numerous and fainter striæ, not being smooth as is stated in the text-books. Further, the "smooth triangle on the ridge of each valve," seen in *C. olivaceus*, is replaced in *C. affinis* by an oblong region at the ridge. The riblets again in the last-named shell are more rounded and the valves are, more or less, punctate, between them; also the lateral areas have in the specimens examined only two or three ribs (in Savigny's figure four). I have gone into this detail since the Rev. A. H. Cooke has* stated that the two forms are one species, and this view has been accepted by Mr. E. A. Smith †, the latter adding *C. aereus*, Rve., as another synonym, a view in which I cannot concur ‡. The matter has an importance beyond the mere specific identification, since both authors have utilized the supposed identity as a factor in their discussion as to what, if any, forms are common to the Mediterranean and the Red Sea. In my view the two are distinct, though allied, species.

TONICIA SUEZENSIS (*Reeve*).

Chiton suezensis, Reeve, Conch. Icon. fig. 134.

Tonicia suezensis, Reeve; Pilsbry, Man. Conch. vol. xiv. p. 206.

Hab. Suez, mud-flats, also among coral; Suez Bay, among coral; Suez Bay, among coral, Kal el Kebira shoal; Suez Bay, Etuleh shoal, 2 fath.; Khor Dongola, washed out of dredgings of weed and coral, Engineer Islet, 3 fath.; Khor Dongola, washed out of nullipore dredged in 5 fath., Beacon Islet; Suakim Harbour, coral reefs; Sudan Coast, among coral, Mersa Ar-rikiya, 1 fath.

ACANTHOPLEURA SPINIGERA, *Sowerby*.

Chiton spiniger, Sowerby, Mag. Nat. Hist., n. s. iv. p. 287, Suppl. pl. xvi. fig. 2.

Acanthopleura spiniger, Sowerby; Pilsbry, Man. Conch. vol. xiv. p. 221.

Hab. Suez mud-flats; Zanzibar, &c.

A long series of this well-known form, which Mr. Crossland notes is "the common high-tide Chiton, everywhere in East Africa, on the cliffs of coral-rag at Djibouti, Mombasa, Zanzibar, Wasin, &c.; also on stones on the edge of reefs of the East Coast of Zanzibar." It has a wide range of distribution, occurring in Australia, the Philippines, &c. (for details see Pilsbry, *l. c.*).

* Ann. Nat. Hist. ser. 6, vol. xviii. p. 394.

† Proc. Zool. Soc. 1891, p. 392.

‡ See for a note on this species, Proc. Malac. Soc. vol. ii. p. 195.